Notes on *Daviesia* and *Jacksonia* (Leguminosae: Papilionoideae) for the Flora of the Perth Region

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Abstract

Crisp, M. D. Notes on *Daviesia* and *Jacksonia* (Leguminosae: Papilionoideae) for the Flora of the Perth Region. Nuytsia 5(1): 159-170 (1984). Six groups of confused species are resolved. As a result, three new species of *Daviesia* are described, namely *D. triflora, D. podophylla* and *D. inflata. Daviesia gracilis* is proposed as a new name for *D. juncea* sensu Sm., non (Schrad.) Pers. *Daviesia hakeoides* Meissn. var. *subnuda* Benth. is raised to suhspecies level. Lectotypes are chosen for *D. physodes* Cunn. ex Don and *D. quadilatera* Benth. *D. physodes*, which has been confused with *D. incrassata* Sm., is reinstated. *Jacksonia condensata* Crisp et J. Wheeler sp. nov. is based upon the misapplied name *J. capitata* sensu Meissn., non Benth. *J. densiflora* Benth., which has been confused with *J. floribunda* Endl., is reinstated.

The *Daviesia juncea* problem

Six taxa have been confused under the name *D. juncea* Sm. They have in common a rush-like, apparently leafless habit, and they belong to the group of species with largish imbricate bracts discussed by Crisp (1982, p. 13).

Only three of these taxa are totally leafless, namely *D. triflora, D. gracilis* and *D. debilior* Crisp subsp. *sinuans* Crisp. Two taxa, *D. debilior* subsp. *debilior* and an unnamed species, are partly clothed with phyllodes, but the phyllodes resemble the branchlets. In the sixth taxon, *D. hakeoides* subsp. *subnuda,* the phyllodes are often few, very reduced and inconspicuous.

Key to species confused under *D. juncea*

1. Phyllodes 0; leaves all reduced to scales
    2. Inflorescences all 3-flowered; calyx base (receptacle) truncate, 2 x diam. of pedicel ..... *D. triflora*
    2. Inflorescences with a variable no. of flowers (2-4 or 3-5); receptacle tapered to pedicel
        3. Upper 2 calyx lobes united in a truncate, emarginate lip; standard 6-6.5 mm broad ..... *D. debilior* subsp. *sinuans*
        3. Upper 2 calyx lobes free, triangular, separated by a 0.75 mm deep sinus; standard 9-10 mm broad ..... *D. gracilis*

1. Some phyllodes present, either branchlet-like and absent from upper parts of branchlets, or short (1-5 mm), pungent, and scattered over branchlets
   4. Phyllodes short (1-5 mm), pungent and scattered over branchlets, sometimes very few ..... *D. hakeoides* subsp. *subnuda*
   4. Phyllodes > 10 mm long, not pungent, absent from upper parts of branchlets
      5. Standard dorsally deep pink with no central streak, 6-6.5 mm broad ..... D. debilior subsp. *debilior*
      5. Standard dorsally purple-black with a central yellow streak, c. 10 mm broad ..... D. sp.

Daviesia gracilis, D. triflora and *D. hakeoides* subsp. *subnuda* are dealt with below. *D. debilior* (including both subspecies) was described by Crisp (1982). The unnamed species, which is endemic in the Stirling Range, will be described in the future.

The name *D. juncea* Sm. is a later homonym of *D. juncea* (Schrad.) Pers., which is itself a synonym of *Viminaria juncea* (Schrad.) Hoffmanns. It is fortunate that this name must now lapse in view of its wide misapplication. A new name is proposed for it below.

Daviesia gracilis Crisp, nom. nov. (Figure 1A)

D. juncea Sm. in Rees, Cyclopaedia 11: sub *Daviesia* no. 10 (Sep. 1808); Trans. Linn. Soc. London 9:260 (1808); Meissn. in Lehm., Pl. Preiss. 1:47 (1844), quoad specimen *Preiss* 1160; Benth., Fl. Austral. 2:88 (1864), pro parte; non (Schrad.) Pers. *Type*: King George's Sound, west coast of New Holland, lat. 35, [1791], *A. Menzies* (holo: LINN, photo CBG; iso: BM, photo CBG).

D. gracilis occurs on heathy sandplains in the Albany-Stirling Range region. Characters to distinguish it from *D. triflora*, probably its closest relative, are given under the latter (below).

Daviesia triflora Crisp, sp. nov. (Figure 1B)

D. juncea sensu Meissn. in Lehm., Pl. Preiss. 1:47 (1844), quoad specimen *Preiss* 1159; Benth., Fl. Austral. 2:89 (1864), pro parte; nec (Schrad.) Pers. nec Sm.

Frutices junciformes caulibus multis ad 0.6 m adscendentibus, ramulis teretibus striatis, foliis ad squamas parvas redactis, racemis in fasciculos condensatis, accurate 3-floris, pedicello quoque 2-3 bracteis expansis exacte seriatim imbricatis cuneatis vel oblongis subtento, calyce lobis 2 superis in labium truncatum vel obtusum connatis, base calycis (receptaculum) truncata. Species *D. debiliori* Crisp subsp. *sinuanti* Crisp et *D. gracili* Crisp simillima.

Typus: 0.6 km W of intersection of Coorow-Green Head road with Brand Hwy, 30°05′S, 115°19′E, 4 July 1976, *C. Chapman* (16)76, f1. (holo: CBG; iso: AD, K, MEL, PERTH).

Rush-like *shrubs* with many stems ascending to 0.6 m, apparently spreading by rhizomes. *Branchlets* erect, not sinuous, terete, smooth, finely striate. *Phyllodes* 0; *leaves* reduced to small scales, never pungent. *Racemes* 1 per scale leaf axil, conspicuously obovoid in bud, condensed to clusters, strictly 3-flowered; *bracts* conspicuous, imbricate; lowermost bracts spirally arranged, shell-shaped; upper bracts

spreading in a neat row of 2 or 3 beneath each pedicel, hooded, cuneate or oblong, truncate, each row 5-6 mm long; *rachis* produced into an erect, slender, sterile bristle c. 4 mm long, ending in a cluster of reflexed bracts. *Pedicels* 3-6 mm long. *Calyx* campanulate, 2.5-3.5 mm long, with a truncate base (receptacle) which is 2x diam. of pedicel; upper 2 lobes united in a truncate or obtuse, emarginate lip; lower 3 lobes shorter, apiculate. *Corolla: standard* very broad-ovate, emarginate, cordate, 8-9 x 7.5-9 mm including c. 1.5 mm claw, yellow or orange-yellow with a dark red centre; *wings* obliquely obovate, auriculate, 6-6.5 mm long including c. 2 mm claw, dark red; *keel* semicircular, falcate, slightly auriculate, saccate, acute, 5-5.5 mm long including c. 2 mm claws, dark red. *Stamens* strongly dimorphic; inner whorl of 5 with very broad-ovoid anthers; vexillary anther with cells confluent at apex. *Pod* compressed, obliquely depressed-obtriangular, scarcely acute, 10-20 x 6-9 mm. *Seed* (Chapman (88)77) obloid, c. 4 mm long, c. 2.25 mm broad, c. 1.25 mm thick, tan with black markings; aril thickly lobed, oblong in outline.

Chromosome number. 2n = 18; voucher V. E. Sands 637.5.6 (Sands 1975).

Etymology. The epithet is from the Latin prefix *tri-* (three) and *florus* (flowered) and refers to the strictly three-flowered inflorescence.

Selected collections (66+ seen). WESTERN AUSTRALIA: N of Perth on Geraldton Hwy, vicinity of 36 mile peg, c. 31°30′S, 115°59′E, *C. Chapman* (88)77 (CBG, PERTH); c. 3.5 miles [5.5 km] N of Marchagee, 30°01′S, 116°06′E, *C. Chapman* (96)77 (AD, CBG); 148 km NNW of Gingin by road, *R. Coveny* 3185 & *T. E. H. Aplin* (K, L, NSW, PERTH); Kewdale, 31°58′S, 115°58′E, *R. Coveny* 8219 (CBG, NSW); 38 km N of Muchea along Brand Hwy, 31°15′S, 115°49′E, *M. D. Crisp* 6455 (CBG, MEL); 7 km S of Marchagee, 30°07′S, 116°03′E, *M. D. Crisp* 6494 (CBG, PERTH); 7 km S of Eneabba, 29°52′S, 115°16′E, *E. A. Griffin* 893 (PERTH); in arenosis sylvae prope oppidum Perth, *L. Preiss* 1159 (K, LD, MEL); East Bullsbrook road, voucher 2n = 18, *V. E. Sands* 637.5.6 (SYD).

Distribution. Western Australia, Irwin and Darling districts, coastal plain from Serpentine north to Eneabba. Common around Perth.

Habitat. Usually on sand or occasionally in gravelly lateritic soil. Associated vegetation is usually heath dominated by *Banksia* spp., *Casuarina campestris, Adenanthos cygnorum, Actinostrobus* sp. or *Eucalyptus todtiana,* but may be open forest dominated by *Eucalyptus marginata, E. gomphocephala,* or *E. wandoo.*

Flowering period. May to September. Fruiting period. September and October.

Affinity. Daviesia triflora resembles *D. gracilis* (q.v.) and *D. debilior* subsp. *sinuans* in being totally leafless. *D. debilior* differs from *D. triflora* in having a variable number of flowers (2-4) in the inflorescence, bracts which are all spirally arranged, a receptacle which is more or less tapered to the pedicel, weak, more or less sinuous branchlets and smaller flowers (e.g. standard 6-6.5 mm broad, calyx 1.5-2 mm long).

Daviesia gracilis, which occurs in the Stirling Range-Albany area, may be distinguished by its variable number of flowers (3-5) in the inflorescence, its bracts which are all spirally arranged, its calyx with two triangular upper lobes separated by a distinct (0.75 mm deep) sinus and by its receptacle which tapers to the pedicel.

Figure 1. A. *Daviesia gracilis*, from *Crisp* 6076. B. *D. triflora*, from *Crisp* 6456. C. *D. inflata*, from *Crisp* 6092.

Daviesia hakeoides Meissn. subsp. **subnuda** (Benth.) Crisp, stat. nov. Basionym: *D. hakeoides* Meissn. var. *subnuda* Benth., Fl. Austral. 2:83 (1864). Holotype: Swan River, *Drummond* 42 (K, photo CBG).

D. juncea sensu Meissn. in Lehm., Pl. Preiss. 1:47 (1844), quoad specimen *Drummond* 237 & *Preiss* 1181; Benth., Fl. Austral. 2:89 (1864), pro parte; nec (Schrad.) Pers. nec Sm.

D. juncea Sm. var. *spinescens* S. Moore, J. Linn. Soc., Bot. 45:169 (1920), syn. nov. *Types*: Wickepin, 1915, *F. Stoward* 108 (lectotype, here designated: BM, photo CBG); Wundowie, 1916, *F. Stoward* 261 (BM, photo CBG); Kauring, near Greenhills, 1916, *G. W. Brown* s.n., herb. *F. Stoward* no. 572 (BM, photo CBG).

Daviesia hakeoides subsp. *subnuda* combines a slight morphological difference (phyllodes less than 10 mm long) with a distribution which is adjacent to but farther inland than *D. hakeoides* sensu stricto.

There has been a great deal of confusion between the more depauperate forms of *D. hakeoides* subsp. *subnuda, D. triflora* and *D. gracilis*. The differences between the latter two species are given under *D. triflora* (q.v.). Both species differ from *D. hakeoides* subsp. *subnuda* in being totally leafless, whereas *D. hakeoides* subsp. *subnuda* always has some spinescent phyllodes which may be only a few mm long and scarcely visible, but which always can be felt.

The *Daviesia quadrilatera* problem

To date, two species with remarkably similar quadrilateral phyllodes have been confused under the name *Daviesia quadrilatera*. Even the original description of *D. quadrilatera* was based on mixed material, representing both species. The type is a single sheet in Kew (K), ex Bentham's Herbarium, with three twigs, respectively labelled 1a, 1b and 2 by myself. Twigs 1a and 1b bear flowers and belong to one species; twig 2 bears an old pod and belongs to the other species.

Bentham's original description includes some characters diagnostic of both species. Thus, "racemulis plurifloris folio sublongioribus" (racemules several-flowered, slightly longer than the leaves) is diagnostic for the species represented by twigs 1a and 1b, whereas "ramis teretibus" (branches terete) is diagnostic for the species represented by twig 2. Further characters given by Bentham distinguish the twigs, although not the species. Thus, "glauca" (glaucous) may be found in either species, but is only seen on twig 2 of the type, whereas "folia .... bis longiora quam lata" (leaves twice as long as broad) is within the range of variation of both species, but in the type is more characteristic of the phyllodes of twigs 1a and 1b than of the phyllodes on twig 2, which are generally nearer 3 times longer than broad. The remaining characters given by Bentham apply equally to all twigs and to both species. To sum up, Bentham's description is about equally correct (or equally wrong) for all elements of his type.

Thus the choice of a lectotype of *D. quadrilatera* cannot be based on how well the description matches different parts of the type material. All later authors have consistently confused the two species, so usage of the name cannot be used as a criterion in choosing a lectotype. Other things being equal, I have chosen a flowering twig, namely twig 1a, as the lectotype. Twig 1b also belongs to *D. quadrilatera* in the new, narrow sense. Twig 2 thus belongs to a new species, *D. podophylla,* which is described in this paper.

Daviesia quadrilatera Benth. in Lindl., Sketch Veg. Swan River Colony xiv (1839); Meissn. in Lehm., Pl. Preiss. 1:52 (1844), quoad specimen *Drummond* 228; Benth., Fl. Austral. 2:85 (1864), pro parte; Reinke, Jahrb. Wiss. Bot. 30:30, fig. 16 (2) (1897). *Type*: Swan River, 1839, *J. Drummond* 1st Coll. s.n. (K, photo CBG—lectotype, here designated: twig marked 1a; isolectotype: twig marked 1b; the twig marked 2 = *D. podophylla* (q.v.)).

D. quadrilatera is restricted to heaths on sand or laterite between Jurien Bay and Three Springs. Characters to distinguish it from *D. podophylla* are given under the latter (q.v.). Before 30 April 1982, I determined specimens of this species mostly with the unpublished name "*D. auriculata*". These should be corrected.

Daviesia podophylla Crisp., sp. nov.

D. quadrilatera Benth. in Lindl., Sketch Veg. Swan River Colony xiv (1839), pro parte, non sensu stricto; Meissn. in Lehm., Pl. Preiss. 1:52 (1844), quoad specimen *Preiss* 1139; Benth., Fl. Austral. 2:85 (1864), pro parte.

Frutices glauci ad 1 m alti et 2 m lati, ramis divaricatis, ramulis teretibus saepe apice spinescenti, phyllodiis verticaliter complanatis oblique quadrilateris vel triangularibus, apicibus exterioribus pungentibus, ad basim in pedem petiolum simulantem c. 1 mm latum contractis, racemis 1-2(raro-3)-floris brevissimis (c. 1 mm longis), pedicellis 2-4 mm longis, quam pedunculis longioribus. Species *D. quadrilaterae* proxima, quae ramulis angulatis apice haud spinescenti, phyllodiis sessilibus, ad caulem base 1.5-4 mm lata adnatis, racemis umbelliformibus 3-6-floris, pedunculis 5-12 mm longis, quam pedicellis longioribus dignoscenda.

Typus: 47 miles [75 km] W of Coorow on Coorow-Green Head Rd, 21 July 1978, *R. J. Cranfield* 273, fl. (holo: CBG; iso: A, CANB, MEL, MO, NFLD, NSW, PERTH, UWA).

Divaricately branched, glaucous *shrubs* to 1 m tall and 2 m broad. *Branchlets* short, 50-200 mm long, often spine-tipped, terete. *Phyllodes* erect, articulate, vertically flattened, obliquely quadrilateral or triangular, pungent at outer apex and base, rarely with 1 or 2 extra pungent points on the upper edge, contracted at the base to a short (1-2 mm) foot resembling a petiole, to 25 x 8 mm, with raised anastomosing veins. *Racemes* 1 per axil, 1-2(rarely 3)-flowered; *rachis* very short, c. 1 mm long; *pedicels* much longer, 2-4 mm long. *Calyx* broad-campanulate, 2.5-3 mm long; teeth minute. *Corolla: standard* broad-obovate, emarginate, cordate, 7.5-8 x 6-7 mm including c. 1 mm claw, orange-yellow with a dark red centre fading greenish; *wings* obliquely obovate, auriculate, 6-7 mm long including c. 1 mm claw, dark pinkish red; *keel* obliquely narrow-ovate, inflexed at centre, upper half constricted to an obtuse beak, auriculate, c. 7 mm long including 2.5-3 mm claws. *Stamens* moderately dimorphic; anthers all 2-celled, subdorsifixed, alternately long and short, otherwise uniform. *Pod* swollen, very broad-obtriangular in outline, acuminate, 11-16 mm long, 8-10 mm broad, 6-8 mm thick. *Seed* (C. Chapman (118) 77, M. E. Phillips 2651 and F. Muell. s.n., MEL 81274 & 81278) more or less globular, 3 mm diam., red-brown. *Hilum* not sunken. *Aril* 0; funicle separating cleanly from hilum when seed is shed. *Seedling* (Crisp 5442) with obliquely very broad-obtriangular phyllodes, pungent at both apices, c. 15 x c. 12 mm.

Chromosome number. n = 9; voucher G. J. Keighery 2432.

Etymology. The name is derived from the Greek *podion* (foot e.g. of a vase) and *phyllon* (leaf) and refers to the petiole-like foot of the phyllode, which is absent in the closely related *D. quadrilatera.*

Selected collections (47+ seen). WESTERN AUSTRALIA: Greenough's and Irwin's River, Nov. 1877, *Anon.* s.n. (MEL 81274 & 81278); Burma Road, SE of Walkaway, 25+ km SE of Geraldton, *A. M. Ashby* 2894 (AD, PERTH); between location 9849 and NE corner of Winchester Grazing Co., c. 29°46′S, c. 115°55′E, *C. Chapman* (118) 77 (CBG, PERTH); just W of Brand Hwy, on Green Head Road, 30°04′S, 115°20′E, 8 July 1979, *C. Chapman* s.n., spirit material (CBG 8302561); 104.6 km NNW of Gingin, *R. Coveny* 3164 and *T. E. H. Aplin* (K, L, NSW, PERTH, RSA); 24 km N of Green Head Road along Eneabba South Road, 5 km ENE of Lake Indoon, 29°52′S, 115°12′E, *M. D. Crisp* 5442, seedling (CBG); Jurien Bay turn-off, 23 km N of Badgingarra along Brand Hwy, 30°14′S, 115°23′E, *M. D. Crisp* 6469 (AD, CBG); Hill River Crossing, Brand Hwy, 30°21′S, 115°28′E, *G. J. Keighery* 2342, voucher n = 9 (PERTH); Gooseberry Hill, Darling Range, 16 Aug 1906, *A. Morrison* s.n. (AD, PERTH); Maida Vale, near Perth, *M. E. Phillips* 2651 (CBG).

Distribution. Western Australia, Irwin and Darling districts, from near Perth north to Kalbarri; rare around Perth; common from Jurien Bay to Three Springs.

Habitat. On sand with lateritic subsoil. Associated vegetation is heath dominated by *Banksia, Hakea,* mallee *Eucalyptus* etc.

Flowering period. Mainly June to August. Fruiting period. September to November.

Affinity. Daviesia podophylla can be confused with no species other than *D. quadrilatera,* which has remarkably similar quadrilateral phyllodes. However, the latter may be distinguished readily by its branchlets which are angular and never spinescent, its sessile phyllodes which are adnate to the branchlet by a 1.5-4 mm broad base and especially by its racemes which are umbelliform with a robust, 5-12 mm long rachis, and which have 3-6 flowers on pedicels much shorter than the rachis. The flowers of *D. quadrilatera* are rather larger than those of *D. podophylla* e.g. the calyx is c. 5 mm long and the standard is c. 9 mm broad.

Daviesia podophylla seems to be unique in the genus in having seeds without an aril and a non sunken hilum. However, I have not seen seeds of *D. quadrilatera,* which is so closely related to *D. podophylla* that it may well have the same unusual seed characters.

Daviesia podophylla is a host to *Pilostyles hamiltonii* C. A. Gardner (Rafflesiaceae). Voucher: 27.4 km W along Strathmore Rd from Brand Hwy, 14 May 1976, *B. Dell* s.n. (PERTH).

Specimens of this species were determined incorrectly by me as *D. quadrilatera* before 30 April 1982. These should be corrected.

The *Daviesia colletioides* problem

Daviesia inflata Crisp, sp. nov. (Figure 1C)

D. colletioides sensu Meissn. in Lehm., Pl. Preiss. 1:48 (1844), pro parte; Benth., Fl. Austral. 2:83 (1864); E. Pritzel in Diels et E. Pritzel, Bot. Jahrb. Syst. 35:248 (1904); non Cunn. ex Benth.

D. incrassata Sm. var. *cylindrica* Domin, Vestn. Kral. Ceske Spolec. Nauk., Tr. Mat.-Prir., Prague 1921-2, 2:34 (1923), verisim. *Type*: non cit. (n.v.).

Frutices multicaules ad 1 m alti, ramulis teretibus, phyllodiis teretibus pungentibus articulatis apice recurvato, lobis calycis ad marginem clare pallidioribus, lamina vexilli latiore quam longiore crocea, legumine inflato fragili 15-18 x 13-15 mm. *D. incrassata* Sm. ab hac specie phyllodiis in ramulis non articulatis differt, et *D. incrassata* et *D. physodes* Cunn. ex Don calyce colore uniformi, lamina vexilli haud latiore quam longiore flava vel subrosea, legumine turgido subcartilogineo c. 12 x c. 10 mm distinguendae.

Typus: c. 0.5 km S of Brennan Ford crossing of Scott River, c. 11 km ENE of Augusta, 34°16′S, 115°16′E, 12 Sep. 1977, *W. R. Barker* 2329, fl. (holo: CBG; iso: AD, K, PERTH).

Shrubs with many ascending or spreading stems to 1 m tall. *Branchlets* longish, ascending, terete, longitudinally wrinkled when dry, frequently galled. *Phyllodes* ascending, articulate, terete, with apex acicular and more or less recurved, 5-80 mm long, 0.5-1.5 mm diam. *Racemes* 1 per axil, 2-5-flowered; *bracts* spathulate, 1-1.5 mm long; rachis 2-8 mm long. *Pedicels* longish (3-9 mm). *Calyx* c. 4 mm long, green with a variable infusion of lead grey at least around bases of lobes or sometimes all over; margins of lobes distinctly paler; lobes broad- or very broad-triangular, c. 1 mm long. *Corolla*: *standard* very broad-obovate, emarginate, cordate, 10-11 x 9-10 mm including c. 2 mm claw, orange-red with a slight pink infusion towards margins, dark red towards centre, with a vertical yellow guide mark at centre; *wings* obliquely obovate, auriculate, c. 7.5 mm long including c. 2 mm claw, dark red; *keel* ovate, falcate, obtuse, auriculate, c. 7.5 mm long including 4 mm claws, dark red. *Stamens* strongly dimorphic; filaments flattened and overlapping; anthers all 2-celled, alternately basifixed and narrow-ovoid versus sub-dorsifixed, ovoid and half as long. *Pod* inflated, beaked, bladdery when immature, brittle when mature, 15-18 x 11-15 mm. *Seed* (Webb s.n.) ellipsoid, c. 5 mm long, c. 2.5 mm broad, c. 2.25 mm thick; aril thickly lobed, obovate in outline.

Etymology. The epithet is from the Latin *inflatus* (bladdery) and refers to the state of the immature fruit.

Selected collections (60+ seen). WESTERN AUSTRALIA: 11 miles [18 km] along Steward Road from Pemberton-Nannup road, *E. M. Bennett* 1613 (PERTH); 23 km from Pemberton along road to Nannup, Tobruk Road turn-off, 34°25′S, 115°49′E, *M. D. Crisp* 5349 (CBG, K, MEL, PERTH); c. 40 km W of Albany, Hay River Bridge, 34°58′S, 117°28′E, *M. D. Crisp* 6092, *J. Taylor & R. Jackson* (CBG, L, MO, MEL, NSW, PERTH); Bow River, Oct. 1912, *S. W. Jackson* s.n. (NSW 34877); Yallingup Nature Reserve, 33°42′S, 115°06′E, *R. Pullen* 9852 (CANB, CBG); Donnybrook, *R. D. Royce* 4851 (PERTH); 15.5 km from Denmark along South Coast Hwy to Albany, *A. Strid* 20429 (C, CBG, K, PERTH); King Georges Sound, Dec. 1882, *W. Webb* s.n. (MEL 81385).

Distribution. Western Australia, Darling district, near the coast from Harvey south to Augusta, thence east to Mt Melville.

Habitat. Grows on sand, frequently on swampy flats which are inundated in winter, or on higher ground. Associated vegetation is heath dominated by sedges and *Melaleuca* (swampy flats) or jarrah forest (higher ground).

Flowering period. September and October. Fruiting period. December and January.

The name *D. colletioides* was misapplied to this species, first by Meissner and consistently thereafter by all authors until now. The original *D. colletioides* Cunn. ex Benth. is a taxonomic synonym of *D. genistifolia* Cunn. ex Benth.

One of the collections (Preiss 1180) seen and cited by Meissner under this name is mixed material, consisting partly of *D. inflata* (the sheet in NY) and partly of *D. incrassata* (the sheet in LD). Bentham (1864) was the first to recognise this. Some sheets of Preiss 1180 in other herbaria are *D. inflata* (G, K, MEL 81314), some are *D. incrassata* (G, MEL 77813) and one bears twigs of both species (MO). The other collection cited by Meissner (Preiss 1163) is uniformly *D. inflata*.

Affinity. Daviesia inflata belongs to a large group of Western Australian species characterised by swollen pods. In *D. inflata*, the pods are larger, more bladdery when immature and more brittle when ripe than in the other species.

The species most likely to be confused with *D. inflata* are *D. incrassata* and *D. physodes*. The former is easily distinguished by its phyllode bases being continuous with the branchlets. Both species may be distinguished from *D. inflata* by their uniformly coloured calyces without paler margins, and by the lamina of the standard being circular or slightly narrower than long (c. 7-8 mm broad) and yellow, infused with pink towards the margins, with a dark red centre, but with no central guide mark. In *D. incrassata* and *D. physodes*, the phyllodes are frequently compressed or flattened in the vertical plane, becoming dilated or lobed at the apex.

The *Daviesia incrassata* problem

From the time of Bentham (1864), a common species in the Perth region has been confused with *D. incrassata*, which only occurs outside the region. The name *D. physodes* is reinstated here for this species.

Daviesia physodes Cunn. ex Don, Gen. Hist. Dichlamydeous Pl. 2:125 (1832); Meissn. in Lehm., Pl. Preiss. 1:49 (1844); Hook., Bot. Mag. 72:t.4244 (1846). *Types:* Swan River, *A. Cunningham* (lecto, here designated: G, photo CBG; isolecto: E, FI-W, ?K, OXF, photos CBG); Oyster Harbour, King Georges Sound, 25 December 1821, *A. Cunningham* 209 (? syn: BM, E, K, photos CBG)=*D. incrassata* Sm.

Daviesia incrassata sensu Benth., Fl. Austral. 2:83 (1864), pro parte; E. Pritzel in Diels et E. Pritzel, Bot. Jahrb. 35:248 (1904), pro parte; non Sm. sensu stricto.

Daviesia incrassata Sm. var. *typica* Domin, Vestn. Kral. Ceske Spolec. Nauk., Tr. Mat.-Prir., Prague 1921-2, 2:33 (1923), pro parte, nom. inval.

Daviesia physodes occurs on the coastal plain and in the Darling Range, extending from Geraldton south to Augusta and east to Narrogin. Although closely similar to *D. incrassata*, it differs in the phyllodes being articulate with the branchlets. In the typical form, the phyllodes are dilated upwards and often lobed at the apex but in some plants the phyllodes become terete, and may be confused with those of *D. inflata*. Characters to distinguish *D. physodes* from *D. inflata* are given under the latter (q.v.).

The author of *D. physodes*, George Don junior, attributes the name, in manuscript, to Alan Cunningham. He does not cite any specimens, but merely states "Native of New Holland". Two Cunningham collections labelled "*D. physodes* A. Cunn." are extant, one from Swan River and the other from King Georges Sound. They represent different species. The Swan River collection is *D. physodes*, as recognised here, whereas the King Georges Sound collection is *D. incrassata*.

A search of Cunningham's manuscripts (microfiche, BM) yielded only one description under the name *D. physodes*. This description closely matches the collection from King Georges Sound (= *D. incrassata*), and in fact Cunningham cites this collection. On the other hand, Cunningham's manuscript description conflicts with Don's published description. Thus it seems most unlikely that Don used Cunningham's manuscript.

The Cunningham collection from Swan River is fully consistent with Don's published description, and therefore it seems likely that Don used a specimen from this collection. Four sheets were located in the herbaria E, FI, G and OXF, plus a sheet in K with a rather doubtful fragment. The sheet in K bears a second fragment which may belong to the collection of *D. incrassata* from King Georges Sound.

The specimen in Geneva was chosen as the lectotype because it probably came from the Lambert Herbarium which, according to Miller (1970), was used extensively by Don when he wrote his "General History". After Lambert's death, his herbarium was divided into lots, sold, and widely dispersed. Miller (1970) states that lot 292, consisting of specimens from Capt. P. P. King's expedition to Australia (c. 1818-22) was bought by Rich, probably on behalf of Delessert, whose herbarium is now in Geneva (G). Specimens from the King voyage were collected by Cunningham.

Before seeing the type material of *D. physodes* in mid 1982, I determined specimens of this species erroneously as *D. brachyphylla* Meissn. or *D. brachyphylla* subsp. *puerilis* Crisp ined.

The *Jacksonia capitata* problem

Jacksonia condensata Crisp et J. Wheeler, sp. nov. Based upon: *J. capitata* sensu Meissn. in Lehm., Pl. Preiss. 1:45 (1844); Benth., Fl. Austral. 2:61 (1864); non Benth. (1837). *Types*: In solo sublimoso glareoso districtus Peel, Oct. 1840, Herb. *L. Preiss* 1078 (holo: LD, photo CBG; iso: G (2 sheets), P, W (2 sheets), photos CBG).

Jacksonia capitata var. *rigida* E. Pritzel in L. Diels et E. Pritzel, Bot. Jahrb. Syst. 35:241-242 (1904). *Type*: Hab. in distr. Avon pr. Tammin in fruticetis arenosis flor. m. Oct. *Syntypes: E. Pritzel* 759 (isosyntype: PERTH) and *Diels* 5077 (n.v.).

Etymology. The epithet is from the Latin *condensatus* (condensed) and refers to the head-like inflorescence.

Additional collections. WESTERN AUSTRALIA: Stirling Range National Park, S Boundary, 8 km E of Chester Pass Road, 34°29′S, 118°08′E, *M. D. Crisp* 6129, *J. Taylor* & *R. Jackson* (CBG, NSW, PERTH); 17 km NW of Quairading, 5.5 km W of Tongerung Well, 31°55′S, 117°17′E, *M. D. Crisp* 6189, *J. Taylor* & *R. Jackson* (CBG, K, PERTH); Stirling Ranges, just out of park, towards Borden, *M. E. Phillips* s.n. (CBG 035636); 14.5 miles [23 km] from Arthur River towards Darkan, *M. E. Phillips* s.n. (CBG 038662); Stirling Range National Park, 10 miles [16 km] from Red Gum Pass-Kendenup road, along Stirling Range Drive, *J. W. Wrigley* WA/68-4385 (CBG, PERTH).

The two authors of the new species realised independently, as a result of revisionary work (M.D.C.) and work on the Flora of the Perth Region (J.W.), that the name *J. capitata* sensu Meissn. non Benth. had been misapplied to this species, which was in fact unnamed.

This is a well known species, albeit under the misapplied name *J. capitata* sensu Meissn.; so well known in fact, that it seems sufficient to propose a new name for it here according to the procedure laid down in the I.C.B.N. Art. 33.3, note 1. Meissner originally described it in Latin, and he cites only a single collection, Preiss 1078. His specimen, here designated as the holotype, is in Lund (LD), and there are isotypes in Geneva (G) and Vienna (W). There is no specimen from Meissner's herbarium in New York (NY).

Jacksonia condensata differs from *J. capitata* Benth., with which it was originally confused, in having subsessile flowers, ovoid buds, yellow petals, keel slightly shorter than wings and much shorter than standard, and a sessile ovary. In *J. capitata* Benth., the flowers are distinctly pedicellate, the buds are obovoid, the petals are yellow and dark red, the keel is longer than the wings and standard, and the ovary is stipitate. Until now, *Jacksonia capitata* Benth. has been known by its synonym, *J. umbellata* Turcz.

Specimens of *J. condensata* from Hill River to Tammin and Quairading (e.g. M. D. Crisp 6189) have thicker, more rigid sterile stems and belong to Pritzel's var. *rigida* of *J. capitata* sensu Meissn. but are probably not specifically distinct.

The *Jacksonia floribunda* problem

There has been a great deal of confusion between Western Australian species of *Jacksonia* which have their ultimate branchlets modified into flattened, lobed, toothed phylloclades. A quick survey of herbarium material indicates that there are many more taxa than names available for them. However the identities of some of the older names can be clarified here.

Jacksonia floribunda Endl., Stirpium Australasicarum Decades III, 9 (1838). *Type*: In Novae Hollandiae austro-occidentalis interioribus, inter King Georges Sound et Swan-River, *J. S. Roe* (holo: W, photo CBG).

This name has been misapplied to other species from the very beginning. It was confused mainly with *J. densiflora* Benth. (q.v.), and also with *J. grevilleoides* Turcz. (q.v.). *Jacksonia floribunda* is very close to *J. decumbens* E. Pritzel, with which it has in common rather open, few-flowered inflorescences, persistent bracts, villous calyces and a procumbent habit. It differs in having larger flowers and fewer, deeper, less regular lobes on the phylloclades. However, *J. decumbens* may not be specifically distinct from *J. floribunda,* in which case the latter name would take precedence. More work on these taxa is required. Both *J. floribunda* and *J. decumbens* occur outside the Perth Region as defined for the forthcoming Flora.

Jacksonia decumbens E. Pritzel in Diels et E. Pritzel, Bot. Jahrb. Syst. 35:238, fig. 30h (1904). *Type:* Hab. in distr. Darling septentrionali prope Mooliabeenee in silvis arenosis apertis flor. et fruct., m. Jan. ?*Syntypes: L. Diels* 2425 (n.v.) and *E. Pritzel* 260 (B(2 sheets), E, G (2 sheets), MO, P (2 sheets), W, photos CBG).

J. densiflora Benth. var. *laxiflora* Benth., Fl. Austral. 2:55 (1864), syn. nov. *Type: J. Drummond* 4th Coll. no. 24 (K(2 sheets), photos CBG). *Isotypes:* BM, G, K, MEL, P (2 sheets), photos CBG.

This may not be specifically distinct from *J. floribunda* (q.v.).

Jacksonia densiflora Benth. in Lindl., Sketch Veg. Swan River Colony xiii (1839); Fl. Austral. 2:54 (1864), excl. var. *laxiflora. Type:* Swan River, 1839, *J. Drummond* 1st Coll. s.n. (holo: K, photo CBG; iso: CGE, photo CBG).

J. floribunda sensu Meissn. in Lehm., Pl. Preiss. 1:43 (1844); Reinke, Jahrb. Wiss. Bot. 30:24, fig. 10 (5, 6) (1897); E. Pritzel in Diels et E. Pritzel, Bot. Jahrb. Syst. 35:238 (1904); non Benth.

Jacksonia densiflora is characterised by long, dense terminal racemes with very villous, almost woolly hairs on the rachis bracts and calyces, caducous bracts and an erect habit. *Jacksonia floribunda* and *J. decumbens* differ in having persistent bracts, less densely hairy inflorescences, and perhaps also in their procumbent habit and more open inflorescences, depending upon how broad a circumscription is given to these taxa. The typical form of *J. densiflora* occurs on the coastal plain in the vicinity of Perth. Specimens from north and east of the Perth Region differ in inflorescence, habit and fruit, and probably belong to undescribed taxa, but need further investigation.

Jacksonia grevilleoides Turcz., Bull. Soc. Imp. Naturalistes Moscou 26:259 (1853); Reinke, Jahrb. Wiss. Bot. 30:24, fig. 11 (3) (1897); E. Pritzel in Diels et E. Pritzel, Bot. Jahrb. Syst. 35:240, fig. 30, F, G (1904). *Type*: *Drummond* Coll. 4 no. 32 (iso: BM, G (2 sheets), K (4 sheets), P (2 sheets), W, photos CBG).

J. floribunda sensu Benth., Fl. Austral. 2:55 (1864); non Endl.

This species is readily distinguished from all the preceding by the long tapered lobes of the phylloclades, most being longer than the width of the phylloclades, and by the insertion of the flowers at the tips of these lobes. Bentham did not see Endlicher's type of *J. floribunda*, which presumably explains his error in placing *J. grevilleoides* under it. *Jacksonia grevilleoides* occurs in the vicinity of the Stirling Range and the adjacent South Coast.

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